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**NONFERROUS METALS INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

YS/T 229.2-2013

Replacing YS/T 229.2-1994

**Methods for chemical analysis of high pure lead. Part 2:
Determination of arsenic content. Atomic fluorescence
spectrometry**

高纯铅化学分析方法 第2部分：砷量的测定原子荧光光谱法
(English Translation)

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Foreword

YS/T 229-2013 "high purity chemical analysis of lead" is divided into four parts.

- Part 1. silver, copper, bismuth, aluminum, nickel, tin, magnesium, and iron - Determination of chemical spectroscopy;
- Part 2. Determination of arsenic content by atomic fluorescence spectrometry;
- Part 3. Determination of antimony content - Atomic Fluorescence Spectrometry;
- Part 4. Determination of trace element contents of glow discharge mass spectrometry.

This is Part 2 YS/T 229's.

This section drafted in accordance with GB/T 1.1-2009 given rules.

The partial replacement of YS/T 229.2-1994 "Determination of Lead in high purity arsenic content (arsenic molybdenum blue photometric method)." And YS/T 229.2-Compared to 1994, the main changes are as follows.

- Changed the measurement method using atomic fluorescence spectrometry;
- Added "precision" clause;
- Added "the test report" requirement.

The non-ferrous metal part by the National Standardization Technical Committee (SAC/TC243) centralized.

This section is responsible for drafting unit. Zhuzhou Smelter Group Co., Ltd.

This section participated in the drafting unit. China Nonferrous Guilin Research Institute of Geology and Minerals Co. Ltd., Beijing General Research Institute of Mining and Metallurgy, Baiyin Nonferrous Group CO., LTD.

1 Scope

This section YS/T 229 specifies the method for the determination of lead in high-purity arsenic content.

This section applies to the determination of the amount of arsenic in high purity lead.

Measuring range. $0.05 \times 10^{-4}\% \sim 0.6 \times 10^{-4}\%$ (mass fraction).

2 Principle of the method

The sample is dissolved in nitric acid, precipitation of lead chloride, lead body, thiourea - ascorbic acid in the presence of arsenic in hydrochloric acid medium is potassium borohydride Reduction of arsenic hydride with argon gas into the quartz furnace atomizer, the fluorescence intensity was measured arsenic in the atomic fluorescence spectrometer.

3 Reagents

Unless otherwise indicated in the analysis using only recognized as a high-purity reagents and water or equivalent purity.

3.1

nitric acid ($\rho = 1.42\text{g/mL}$).

3.2

hydrochloric acid ($\rho = 1.19\text{g/mL}$).

3.3

nitric acid (12).

3.4

hydrochloride (11).

3.5

hydrochloride (14).

3.6

thiourea - ascorbic acid solution (50g/L). Weigh 5g thiourea (excellent pure), 5g ascorbic acid (excellent pure), dissolved in water, dilute Diluted to 100mL, and mix. The time is now equipped with.

3.7

solution of potassium borohydride (25g/L). Weigh 5g potassium borohydride (excellent pure), was added a solution of 1g of potassium hydroxide in advance (excellent pure) of 200mL of water. The time is now equipped with.

3.8

arsenic standard stock solution. Weigh 0.1000g arsenic ($w_{As} \geq 99.99\%$), placed in a beaker of 150mL, 20mL of nitric acid was added (3.3), Low heat to dissolve, cooled and transferred to 1000mL volumetric flask, dilute with water to volume, and mix. This solution 1mL arsenic 100 μ g.

3.9

arsenic standard solution. Pipette 2.50mL arsenic standard stock solution (3.8) in 500mL volumetric flask, was added 50mL of hydrochloric acid (3.2), with Dilute with water to volume, and mix. This solution 1mL arsenic 0.50 μ g.

3.10

argon (purity $\geq 99.99\%$).

4 Instrument

Atomic fluorescence spectrometer, with a high-intensity arsenic hollow cathode lamp.

Under optimum working conditions, where the index can be used to achieve the following.